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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,285	01/02/2002	Alfred Bubik	P21775	7957

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EXAMINER	
HUG, ERIC J	

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/019,285	BUBIK ET AL.	
	Examiner	Art Unit	
	Eric Hug	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *85-131* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *107-110* is/are allowed.

6)☒ Claim(s) *85-92,98-106,113-125 and 127-130* is/are rejected.

7)☒ Claim(s) *93-97,111,112,126 and 131* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The following is in response to the amendment filed on July 13, 2004.

Claim Objections

Claim 97 is objected to because it should depend on claim 93, 95, or 96, not claim 85 (note the use of the phrase "said pickup point", first described in claim 93). Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 85-92, 98-106, 113-125, and 127-130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halmschlager (EP 0 933 473) in view of Bubik et al (US 4,417,950) or Armstrong et al (US 4,425,187). Patent family member US 6,267,846 has been relied upon as the English translation equivalent for EP 0 933 473.

Halmschlager discloses a twin-wire former for a fibrous web comprising two endless wire belts (11, 12) that converge to form a gap, a flowbox (headbox 26) positioned at the gap inlet, a rotating dewatering element (30) where the two wires converge, a fibrous web formed between the two wires, dewatering elements (37) positioned downstream of the rotating dewatering element, a first deflection device (deflection roller 42), a separation suction device

(15), and a suction roller (33). The flowbox is angled with respect to the horizontal, as shown in the Figures and described in column 4, lines 44-67. The flowbox may be directed upwardly, as shown in Figure 1, or downwardly as shown in Figure 2. The two wires are arranged to run over the rotating dewatering element and then downward at an angle of 10-50^{O} to the vertical over dewatering elements 37 (column 6, lines 8-18). The two wires pass beneath the lower vertex of the deflection roller 42. Deflection roller 42 deflects the two wires in a generally horizontal direction. The separation suction device 15 separates the top wire from the bottom wire and from the web disposed on the bottom wire. After separation of the wires, the upper wire is led away back towards the inlet gap. The suction roller 33 serves as a second deflection device over which bottom wire and the web travel (over the upper vertex) and then guided in a downward direction. The difference between the twin-wire former of Halmschlager and that of the present invention is that in Halmschlager the two wires are arranged to travel horizontally between two deflection devices rather than being arranged to be run upward at an angle to the horizontal, with the upper vertex of the second deflection roll being located higher than the lower vertex of the first deflection roll. In Halmschlager, the two deflection devices are at about the same horizontal plane.

Bubik discloses a twin-wire machine having many of features of the machine of Halmschlager. Particularly in Figure 5 (see also column 6, lines 23-32), the twin-wire machine has two endless wires that form a gap, a stock inlet (10), dewatering devices (5, 22), a downward run of the two wires over the dewatering devices, a first deflection devices (deflection roll 13), a separating device (30'), and a second deflection device (deflection roll 14). After the first deflection roll, the two wires are directed at an upward angle rather than horizontally. After

the two wires separate, the upper wire travels upwards and back to the gap inlet. The bottom wire and web travel up over the second deflection device and then downward to a web transfer point. It can be seen in Figure 5 that the upper vertex of the second deflection device is above the lower vertex of the first deflection device. One advantage of having an upwardly takeoff of the two wires from the first deflection device (arising from the relative positions of the two deflection devices) is that there is an increased wrap-around angle at both deflection devices. Large wrap around angles are favorable for increased dewatering action at the first deflection device. Having a large wrap-around angle at the second deflection device ensures good web adhesion to the lower wire.

Armstrong is provided as additional evidence of the desirability of having the wires ascend from a first deflection device towards a second deflection device. In Figure 3 of Armstrong, two wires with a web in between are guided about a deflection device (deflection roll 37) at a large wrap angle and upwards towards a suction roll 6, which serves as a second deflection device. A suction box 21' is disposed between rolls 37 and 6 to separate the two wires and ensure the web follows the lower wire (see column 6, lines 33-47). It can be seen in Figure 3 that the upper vertex of the second deflection device is above the lower vertex of the first deflection device. As in Bubik above, there is a large wrap angle about the first deflection device.

Therefore, at the time of the invention, it would have been obvious to one skilled in the art to position the deflection rolls of Halmschlager in a manner whereby the lower vertex of the first deflection device is lower than the upper vertex of the second deflection device, so that the

two wires are directed upwardly from the first deflection roll, thereby resulting in increased wrap angle about the first deflection device and thereby providing the advantages described above.

The features described above read on at least the claimed twin-wire former of claim 85 and the claimed process of claims 129 and 130. The dependent claims are addressed as follows:

Claim 86, 91-92: As described above, the flowbox of Halmschlager can be oriented downward or upward at an angle relative to horizontal. The angle clearly can be less than 30^{O}.

Claims 87: As described above, the dewatering element is a rotating dewatering element (30). This rotating dewatering element is a forming roll.

Claims 88-90, 114, 115: The relative height between the upper vertex of the second deflection device and the lower vertex of the first deflection device in both Figure 5 of Bubik and Figure 3 of Armstrong are on the order of the diameter of the forming roll, therefore is much greater than the claimed 200mm.

Claims 98, 99: The upward angle that the wires run after the first deflection device is clearly between 10-90 degrees to the horizontal, as shown in Figure 5 of Bubik and Figure 3 of Armstrong.

Claim 100-102: Halmschlager discloses additional dewatering elements including a forming shoe 36 having a plurality of drainage strips 34 and a source of suction 29'. Opposing the forming shoe on the other side of the two wires are forming strips 38 that are flexibly pressed against wires and a catch basin 39' which also may be attached to a source of vacuum. See column 5, line 42 to column 6, line 7. Since these devices operate with a constant vacuum, they are isobaric dewatering elements. The dewatering elements may also or alternatively comprise balanced-pressure drainage element 16, and 17. Elements 16 comprise stationary plate segments

and elements 17 comprise plate segments that are flexibly pressed by pneumatic means (selectable force) against the wire. See column 7, lines 1-32.

Claim 103: In Halmschlager, Figure 1, a flat suction element 37' is located after the separating device 15. It acts on the bottom wire carrying the web.

Claims 104-106: The angle of downward run of the bottom wire after the second deflection device is clearly less than 25 degrees, as shown in Figure 1 of Halmschlager, Figure 5 of Bubik, and Figure 3 of Armstrong.

Claim 113: In both Bubik and Armstrong described above, the second deflection device is a suction roll that allows the bottom wire and web to travel around the roll at a large wrap angle and also provides for additional web dewatering.

Claims 116, 117: In Halmschlager, the first deflection roll 42 is a closed roll and the separation device 15 is a suction element. Also, Bubik shows equivalently in Figure 5 a closed roll 13 and suction element 30, and Armstrong shows equivalently in Figure 3 a closed roll 37 and a suction element 21'.

Claims 118-120: The diameter of the forming roll of Halmschlager is disclosed to be between 1.5 to 2.5 meters.

Claims 121-122: Halmschlager discloses that most of the dewatering takes place at the forming roll, and that it is desirable to remove as much water as possible at the forming roll to obtain strong webs. Therefore, the dewatering capacity of forming roll is likely to be greater than the claimed 60% of the total dewatering capacity of the twin-wire former. Although this is not expressly disclosed, the dewatering capacity is an optimizable variable. Therefore, the claims are unpatentable, because it has been determined by legal precedent that the discovery of

an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art, *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Claims 123-125: The forming roll of Halmschlager is an open, suction forming roll which may have a honeycomb structure (column 5, line 66 to column 6, line 7).

Claims 127-128: Bubik teaches a low overall former height is desirable, and that the overall height of the former is a result of the location of the first deflection roll being about the same level as the dewatering roll. Therefore, the height of the twin-wire former is considered to be an optimizable variable. The claims are unpatentable because it has been determined by legal precedent that the discovery of an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art, *In re Boesch*, 205 USPQ 215 (CCPA 1980).

The above rejection has been repeated from the previous office action.

Allowable Subject Matter

Claims 107-110 are allowed.

Claims 93-97, 111, 112, 126, and 131 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 107-110 are allowed for reasons presented previously.

Claims 93-97 and 131 are allowable for additionally providing a felt, a press section, and a web pickup point following the second deflecting device, whereby the web pickup point is above the lower vertex of the first deflection device.

Claims 111 and 112 are allowable for additionally providing a forming device after the second deflecting device.

Claim 126 is allowable for specifying that the diameter of the first deflection device is greater than the diameter of the forming roll or the diameter of the second deflection device.

This allowable subject matter was indicated in the previous office action.

Response to Arguments

Applicant's arguments filed July 13, 2004 have been fully considered but they are not persuasive.

In the arguments presented on page 3, second paragraph to page 4, first paragraph, Applicant recites some of the features of claims 85 and 130 and submits that no proper combination of the applied art teaches at least these features. The features are given below and the references to the applied prior art follow:

From claim 85, "...in a region of at least one separating element (15, Halmschlager), one of the two wires belts (12) is arranged to be led away from the forming fibrous web and the other (11) of the two wire belts, a second deflection device (suction roller 33) having an upper vertex is positioned after the separating device (15) and structured and arranged to deflect the other wire belt (11) that carries the forming fibrous web, and after the first deflection device (deflection roller 42), the two wire belts are arranged to run upward at an angle relative to an imaginary second horizontal plane such that the upper vertex of the second deflection device is located above the lower vertex of the first deflection device (modification by Bubik/Armstrong)." From claim 130, "... guiding the forming fibrous web and the two endless wire belts (11, 12 of Halmschlager) over the lower vertex of the first deflection device (42), after the first deflection device, guiding the two endless wire belts to run upward at an angle to the horizontal reference (taught by Bubik/Armstrong), such that the lower vertex of the first deflection device (42) is located below the upper vertex of the second deflection device (33), and guiding the second endless wire belt (11) carrying the forming fibrous web over the second deflection device. " In

both claim 85 and 130, when the two wires are guided at an upward angle, then the lower vertex of the first deflection device must be below the upper vertex of the second deflection device (else the wire belts will not be directed upwardly). Therefore, the combination of references discloses all the claimed elements.

In the arguments presented on page 4, second paragraph, while acknowledging that the claims have been modified, Applicant submits that, notwithstanding the modified claims, their previous position is that the art of record fails to provide the requisite motivation or rationale for combining the applied prior art references in the manner asserted by the examiner. Applicant also notes that this rejection has been previously presented by the Examiner and addressed by Applicant. The examiner recognizes the rejection set forth in the previous office action (and repeated above) had been previously presented. The rejection in the previous office action was rewritten to conform to the modified claims.

In the arguments presented on page 4, third paragraph to page 5, second paragraph. Applicant submits that Halmschlager discloses a twin wire former, but fails to provide any teaching or suggestion of a second deflection device located after the separating device that is arranged to deflect the second endless wire carrying the forming web, as recited in claim 85, and fails to teach or suggest guiding the second wire carrying the web over the second deflection element, as recited in claim 130. Applicant also submits that instead, Halmschlager discloses a suction pick-up roll to remove the web from passing wire 12 as in Figure 5 and that there is no

disclosure in Halmschlager that wire 12 is deflected over suction roll 8. The examiner does not dispute this analysis of Figure 5. However, it is with reference to the twin wire former of Figure 1 that the rejections hold. As can be seen in Figure 1, a second deflection device (suction roll 33) is arranged after the separating device 15, and deflects the wire carrying the web. The path of the wire and the web is over the upper vertex of this roll 33.

The examiner does not dispute that Bubik discloses a structurally distinctive twin wire former in which an upper wire is pivotably mounted to open and close contact with the lower wire. However, the twin wire former of Figure 5 of Bubik comprises features which separate and upwardly guide the two wires over a deflection roll in the manner claimed by Applicant. Applicant submits that Bubik fails to provide any teaching or suggestion of any benefits that are achieved through this arrangement, nor is there any teaching or suggestion of any problem in the art this is addressed by the particular arrangement, and because Bubik arguably provides no teaching or suggestion to one ordinarily skilled in the art that it would not have been obvious to modify Halmschlager to include such an arrangement. In particular, Applicants note that it is not apparent from the Halmschlager device how or why the pivoting upper wire assembly of Bubik would be utilized by Halmschlager.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the examiner refers Applicant to Bubik, column 2, lines 9-33 and column 2, line 67 to column 3, line 11. This describes some motivation for having deflection rolls arranged as such, providing increased dewatering of the web due to larger wrap angles and also providing for compactness of the paper machine. In Armstrong, column 6, lines 33-44, motivation for the deflection roll arrangement is given, which is for providing larger wrap angles and additionally for insuring detachment of the web from the upper wire.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In arguments presented by Applicant on page 5, fourth paragraph to page 6, second paragraph, Applicant again notes that Halmschlager and Bubik are directed to different former arrangements (twin wire former vs. fourdrinier former) that operate in different manners. Moreover, neither document teaches or suggests modifying the structure or operation of Halmschlager in the manner asserted by the Examiner, i.e., to additionally include the identified structure of Bubik. Applicant further submits that the mere fact that Bubik shows an arrangement of elements recited in the pending claims is not a reason that one ordinarily skilled in the art would modify the arrangement of Halmschlager in the manner asserted by the

Examiner. However, it remains the examiner's position that there is sufficient teaching in Bubik to modify the former of Halmschlager so that the lower vertex of the first deflection device (42) is lower than the upper vertex of the second deflection device (33). Bubik teaches the desirability of such an arrangement, and to modify the former of Halmschlager would merely require a vertical displacement of one or both of the deflection devices, because the lower vertex of the first deflection device and the upper vertex of the second deflection device are presently at the same horizontal level.

In the arguments presented on page 6, third paragraph to page 7, first paragraph. Further, Applicant notes that Bubik does not disclose or suggest any advantages achieved as a result of the upwardly guided wires that would provide corresponding benefits in a former such as Halmschlager and that because the art of record fails to provide any reasonable explanation why one ordinarily skilled in the art would utilize such an arrangement, and/or fails to disclose or suggest the problems that such an arrangement would address, the art of record fails to provide the requisite motivation or rationale as to why one ordinarily skilled in the art would modify Halmschlager in the manner asserted by the Examiner. This argument has been addressed above.

In the arguments presented on page 7, third paragraph to the start of page 9, Applicant submits that, because the formers of the applied art are structurally and operationally distinct from each other, the art of record fails to provide any showing that the use of the Bubik arrangement, or any portion thereof, would have any utility at all in Halmschlager. Applicant also notes that initial dewatering is performed differently in each document and that if modified

in the manner asserted by the Examiner, Halmschlager would not continue to operate in its intended manner. However, as described above, modification of Halmschlager according to Bubik would require only vertical displacement of the deflection devices relative to one another to obtain the desired arrangement taught by Bubik. This would not affect the operation of Halmschlager away from its intended manner.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jeh

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